

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A titanium alloy consisting of:

when the entirety is taken as 100% by mass,

at least one alloying element selected from the group consisting of molybdenum (Mo), vanadium (V), tungsten (W), niobium (Nb), tantalum (Ta), iron (Fe), chromium (Cr), nickel (Ni), cobalt (Co), copper (Cu) and aluminum (Al) in a molybdenum equivalent "Mo_{eq}" of from 3 to 11% by mass, the molybdenum equivalent determined by the following equation,

$$\text{Mo}_{\text{eq}} = \text{Mo}_{\text{mass}} + 0.67\text{V}_{\text{mass}} + 0.44\text{W}_{\text{mass}} + 0.28\text{Nb}_{\text{mass}} + 0.22\text{Ta}_{\text{mass}} + 2.9\text{Fe}_{\text{mass}} + 1.6\text{Cr}_{\text{mass}} + 1.1\text{Ni}_{\text{mass}} + 1.4\text{Co}_{\text{mass}} + 0.77\text{Cu}_{\text{mass}} - \text{Al}_{\text{mass}},$$
 wherein Mo_{mass}, V_{mass}, W_{mass}, Nb_{mass}, Ta_{mass}, Fe_{mass}, Cr_{mass}, Ni_{mass}, Co_{mass}, Cu_{mass} and Al_{mass} are expressed in percentages by mass;

at least one interstitial solution element selected from the group consisting of oxygen (O), nitrogen (N) and carbon (C) in an amount of from 0.6 to 3% by mass; and

the balance of titanium (Ti);

the content of Al being controlled to 1.8% by mass or less; and

being β single phase at room temperature at least.

Claim 2 (Original): The titanium alloy set forth in claim 1, wherein the interstitial solution element is O.

Claim 3 (Original): The titanium alloy set forth in claim 1 being of flexibility to exhibit a Young's modulus of 70 GPa or less.

Claim 4 (Original): The titanium alloy set forth in claim 1 being of high strength to exhibit a tensile strength of 1,000 MPa or more.

Claim 5 (Original): The titanium alloy set forth in claim 1 being of high elasticity to exhibit an elastic deformability of 1.6% or more.

Claim 6 (Canceled).

Claim 7 (Withdrawn): A process for producing a titanium alloy, comprising:
subjecting a raw titanium-alloy material to a solution treatment,
the raw titanium-alloy material comprising:
when the entirety is taken as 100% by mass,
at least one alloying element selected from the group consisting of Mo, V, W, Nb, Ta, Fe, Cr, Ni, Co, Cu and Al in a molybdenum equivalent "Mo_{eq}" of from 3 to 11% by mass, the molybdenum equivalent determined by the following equation,

$$\text{Mo}_{\text{eq}} = \text{Mo}_{\text{mass}} + 0.67\text{V}_{\text{mass}} + 0.44\text{W}_{\text{mass}} + 0.28\text{Nb}_{\text{mass}} + 0.22\text{Ta}_{\text{mass}} + 2.9\text{Fe}_{\text{mass}} + 1.6\text{Cr}_{\text{mass}} + 1.1\text{Ni}_{\text{mass}} + 1.4\text{Co}_{\text{mass}} + 0.77\text{Cu}_{\text{mass}} - \text{Al}_{\text{mass}},$$
 wherein Mo_{mass}, V_{mass}, W_{mass}, Nb_{mass}, Ta_{mass}, Fe_{mass}, Cr_{mass}, Ni_{mass}, Co_{mass}, Cu_{mass} and Al_{mass} are expressed in percentages by mass;

at least one interstitial solution element selected from the group consisting of O, N and C; and

the balance of Ti;

the content of Al being controlled to 1.8% by mass or less;

the solution treatment comprising the steps of:

heating the raw titanium-alloy material to form β single phase therein; and

quenching the heated raw titanium-alloy material,

whereby producing a titanium alloy being β single phase at room temperature at least.

Claim 8 (Withdrawn): The process set forth in claim 7, wherein the raw titanium-alloy material is held at a β transformation temperature or more at which the raw titanium-alloy material is turned into β single phase for from 1 to 60 minutes in the heating step.

Claim 9 (Withdrawn): The process set forth in claim 7, wherein the heated raw titanium-alloy material is quenched at a cooling rate of from 0.5 to 500 K/sec. in the quenching step.

Claim 10 (Withdrawn): The process set forth in claim 7, wherein the raw titanium-alloy material further comprises at least one additional alloying element selected from the group consisting of Zr, Hf, Sc, Mn, Sn and B in an amount of from 0.1 to 10% by mass.

Claim 11 (Previously Presented): The titanium alloy set forth in claim 1, wherein the Mo_{eq} is of from 3.5 to 10.5% by mass.

Claim 12 (Canceled).

Claim 13 (Previously Presented): The titanium alloy set forth in claim 1, wherein the at least one interstitial element is in an amount of from 0.7 to 3% by mass.

Claim 14 (Previously Presented): The titanium alloy set forth in claim 1, wherein the content of Al is 1.7 to 0.3 % by mass.

Claim 15 (Previously Presented): A titanium alloy consisting of:
when the entirety is taken as 100% by mass,

at least one alloying element selected from the group consisting of molybdenum (Mo), vanadium (V), tungsten (W), niobium (Nb), tantalum (Ta), iron (Fe), chromium (Cr), nickel (Ni), cobalt (Co), copper (Cu) and aluminum (Al) in a molybdenum equivalent "Mo_{eq}" of from 3 to 11% by mass, the molybdenum equivalent determined by the following equation,

$$\text{Mo}_{\text{eq}} = \text{Mo}_{\text{mass}} + 0.67\text{V}_{\text{mass}} + 0.44\text{W}_{\text{mass}} + 0.28\text{Nb}_{\text{mass}} + 0.22\text{Ta}_{\text{mass}} + 2.9\text{Fe}_{\text{mass}} + 1.6\text{Cr}_{\text{mass}} + 1.1\text{Ni}_{\text{mass}} + 1.4\text{Co}_{\text{mass}} + 0.77\text{Cu}_{\text{mass}} - \text{Al}_{\text{mass}}$$
, wherein Mo_{mass}, V_{mass}, W_{mass}, Nb_{mass}, Ta_{mass}, Fe_{mass}, Cr_{mass}, Ni_{mass}, Co_{mass}, Cu_{mass} and Al_{mass} are expressed in percentages by mass;

at least one additional alloying element selected from the group consisting of zirconium (Zr), hafnium (Hf), scandium (Sc), manganese (Mn), tin (Sn) and boron (B) in an amount of from 0.1 to 10% by mass;

at least one interstitial solution element selected from the group consisting of oxygen (O), nitrogen (N) and carbon (C) in an amount of from 0.6 to 3% by mass; and

the balance of titanium (Ti);

the content of Al being controlled to 1.8% by mass or less; and

being β single phase at room temperature at least.

Claim 16 (Previously Presented): The titanium alloy set forth in claim 15, wherein the Mo_{eq} is of from 3.5 to 10.5% by mass.

Claim 17 (Previously Presented): The titanium alloy set forth in claim 15, wherein the at least one interstitial element is in an amount of from 0.7 to 3% by mass.

Claim 18 (Previously Presented): The titanium alloy set forth in claim 15, wherein the content of Al is 1.7 to 0.3 % by mass.

Claim 19 (New): The titanium alloy of claim 1, wherein said interstitial element is oxygen.

Claim 20 (New): The titanium alloy of claim 1, wherein said interstitial element is nitrogen.

Claim 21 (New): The titanium alloy of claim 1, wherein said interstitial element is carbon.

Claim 22 (New): The titanium alloy of claim 1, which does not contain at least one alloying element selected from the group consisting of nickel (Ni), cobalt (Co), or aluminum (Al).

Claim 23 (New): The titanium alloy of claim 1, which contains 0.3 to 1.8% by mass Al.

Claim 24 (New): The titanium alloy of claim 1, which is produced by a process involving solution treatment comprising:

heating the raw titanium-alloy material to form β single phase therein; and

quenching the heated raw titanium-alloy material;

thereby producing a titanium alloy characterized as a β single phase at 273-313° K.